



# Unravelling the complex tapestry of addiction: insights from recent research

Gregers Wegener 

Translational Neuropsychiatry Unit, Aarhus University, Aarhus, Denmark

## Editorial

**Cite this article:** Wegener G. (2024) Unravelling the complex tapestry of addiction: insights from recent research. *Acta Neuropsychiatrica* 36:65–66. doi: [10.1017/neu.2024.8](https://doi.org/10.1017/neu.2024.8)

Received: 22 February 2024  
Accepted: 22 February 2024

### Keywords:

Addiction; Africa; cannabis; central nervous system; early life stress

Email: [wegener@clin.au.dk](mailto:wegener@clin.au.dk)

Addiction represents one of the most daunting challenges confronting public health, social systems, and individuals across the globe. Defined as a multifaceted and chronic brain disorder, addiction encompasses a broad spectrum of substance use disorders that profoundly affect the fabric of society. The implications of addiction extend beyond the individual, impacting families, communities, and healthcare systems. This complexity necessitates a comprehensive research approach that elucidates the disorder's biological, environmental, and psychological underpinnings. In this context, the latest volume of *Acta Neuropsychiatrica* is a significant contribution to the field, presenting six pioneering studies that advance our understanding of addiction's multifarious nature.

Gobira's exploration of the roles of cannabinoid receptors in the modulation of psychostimulant responses opens a promising avenue for understanding the neurobiological underpinnings of addiction. By focusing on the cannabinoid CB1 and CB2 receptors' interaction with the mesocorticolimbic system, this study highlights potential targets for pharmacological interventions aimed at mitigating the rewarding effects of psychostimulants like cocaine and methamphetamine (Gobira *et al.*, 2024).

Bittencourt's investigation into the relationship between early life stress (ELS), cocaine use disorder (CUD), and cingulate cortical thickness further underscores the profound impact of environmental factors on addiction. The findings suggest that ELS not only predisposes individuals to substance use disorders but also exacerbates the neurobiological consequences of chronic cocaine consumption, offering a critical perspective on the importance of addressing early life adversities in the treatment and prevention of addiction (Bittencourt *et al.*, 2024).

The study by Uban, focusing on prenatal alcohol and tobacco exposure, emphasises the lasting effects of early environmental influences on brain development and the risk of future substance use disorders. This research is particularly significant in highlighting the need for community-level interventions to mitigate prenatal exposure to these substances and protect future generations from their deleterious effects (Uban *et al.*, 2024).

Funchal's work on the association between CUD, childhood maltreatment, and inflammation reveals the complex interactions between ELS, substance abuse, and immune response. This study not only contributes to our understanding of the biological pathways through which early adversity influences addiction but also points to potential biomarkers for identifying individuals at high risk of substance use disorders (Funchal *et al.*, 2024).

Rossi's examination of the effects of a single dose of cocaine on synaptic density in the adolescent brain provides invaluable insights into the vulnerability of the developing brain to substance-induced changes. The lasting alterations in hippocampal synaptic density underscore the critical need for interventions aimed at protecting the adolescent brain from the harmful effects of drugs (Rossi *et al.*, 2024).

Finally, Romeo's study on the impact of cannabis cessation on inflammatory markers and psychotic symptoms sheds light on the complex relationship between substance use, immune response, and mental health. The findings suggest that cessation of cannabis use, while beneficial in many respects, may also lead to short-term increases in inflammatory markers that could exacerbate psychotic symptoms, highlighting the need for comprehensive care strategies that address both substance use and mental health (Romeo *et al.*, 2024).

Collectively, these studies provide a nuanced understanding of addiction, emphasising the role of neurobiological mechanisms, the impact of early life experiences, and the importance of considering the individual's broader psychosocial context. As we move forward, research must continue to unravel the complex tapestry of addiction, informing evidence-based interventions that address not only the biological aspects of the disorder but also the environmental and psychological factors that contribute to its onset and progression.

In conclusion, the path to overcoming addiction lies in a multidisciplinary approach that integrates neuroscience, psychology, and public health insights. By continuing to explore the multifaceted nature of addiction, we can develop more effective strategies for prevention, treatment, and recovery, ultimately reducing the burden of this disorder on individuals and society.



## References

- Bittencourt AML, Silveira B, Tondo LP, Rothmann LM, Franco AR, Ferreira P, Viola TW and Grassi-Oliveira R** (2024) Cingulate cortical thickness in cocaine use disorder: mediation effect between early life stress and cocaine consumption. *Acta Neuropsychiatr*, **36**, 78–86.
- Funchal GA, Schuch JB, Zaparte A, Sanvicente-Vieira B, Viola TW, Grassi-Oliveira R and Bauer ME** (2024) Cocaine-use disorder and childhood maltreatment are associated with the activation of neutrophils and increased inflammation. *Acta Neuropsychiatr*, **36**, 97–108.
- Gobira PH, Joca SR and Moreira FA** (2024) Roles of cannabinoid CB1 and CB2 receptors in the modulation of psychostimulant responses. *Acta Neuropsychiatr*, **36**, 67–77.
- Romeo B, Lestra V, Martelli C, Amirouche A, Benyamina A and Hamdani N** (2024) Increased markers of inflammation after cannabis cessation and their association with psychotic symptoms. *Acta Neuropsychiatr*, **36**, 118–127.
- Rossi R, Baerentzen SL, Thomsen MB, Real CC, Wegener G, Grassi-Oliveira R, Gjedde A and Landau AM** (2024) A single dose of cocaine raises SV2A density in hippocampus of adolescent rats. *Acta Neuropsychiatr*, **36**, 109–117.
- Uban KA, Jonker D, Donald KA, Bodison SC, Brooks SJ, Kan E, Steigelmann B, Roos A, Marshall A, Adise S, Butler-Kruger L, Melly B, Narr KL, Joshi SH, Odendaal HJ, Sowell ER and Stein DJ** (2024) Associations between community-level patterns of prenatal alcohol and tobacco exposure on brain structure in a non-clinical sample of 6-year-old children: a South African pilot study. *Acta Neuropsychiatr*, **36**, 87–96.